COMPUTERS AND AUTOMATION

CYBERNETICS · ROBOTS · AUTOMATIC CONTROL

Vol. 3, No. 1

JANUARY, 1954

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MONROBOT ELECTRONIC CALCULATOR

The MONROBOT is a general purpose digital computer, compact, ruggedized, reliable and reasonably priced. In the MONROBOT, decimal numbers are used. Since twenty digits are available, with a centrally located decimal point, there is no need for scaling or setting of decimal point. Neither overflow nor translation techniques are necessary. Orders are written for the calculator in virtually their original algebraic form.

Neither highly trained personnel nor extensive training effort are needed for the MONROBOT. Keyboard and automatic tape operations are counterparts of the simple programming procedures. Average office personnel become familiar with MONROBOT operation the first day. It prints out results on 8-1/2" wide paper roll, or perforates a paper tape as desired.

MONROBOT V is complete in one desk-size unit, ready to plug in and perform. MONROBOTS can be supplied with capacities to suit special requirements, avoiding excess investment for unnecessary facilities.

MONROBOT CORPORATION

MORRIS PLAINS **NEW JERSEY**

A SUBSIDIARY OF MONROE CALCULATING MACHINE COMPANY

COMPUTERS AND AUTOMATION

Vol. 3, No. 1 January, 1954

ARTICLES Page

REFERENCE INFORMATION

DEPARTMENTS

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Puzzles. In the column next to this one we have printed some puzzles which we are currently sending out as part of a mailing to non-subscribers. It occurs to us that these puzzles may be of interest to our subscribers, and so we repeat them here. We hope you will enjoy them.

Incidentally, we would be interested in seeing a program for a large-scale automatic digital computer to solve such puzzles as these.

Delays in the U. S. Post Office. The November issue of COMPUTERS AND AUTOMATION was delivered to the post office at Grand Central Terminal, New York, for mailing on Nov. 5. In the subscription list is a stencil for us, so that one copy will come to us and provide a check on the delivery of the magazine; our copy arrived at 36 West 11 St., New York, on Saturday, Nov. 14. Therefore, the copy took nine days to travel two miles. We inquired of the post office in New York the reasons for the delay. No specific reason was given, but the underlying reason appears to be the intense drive for economy in nonmilitary government expenditures. We are sorry that copies of COMPUTERS AND AUTOMATION are subject to such delay.

Size of the Magazine. The full effect of the reduction in the size of our type, and our adoption of two narrow columns instead of one wide column, is beginning to appear in this issue of COMPUTERS AND AUTOMATION. The January issue is 32 pages long instead of the usual 40 pages, and yet it contains practically the same amount of reading matter, or even more than before.

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Address Changes. If your address changes, please notify us giving both old and new addresses, and allow three weeks for the change.

Back Copies. See the information on page 19.

Manuscripts. For manuscripts wanted see the note on page 29.

PUZZLES FOR COMPUTERS

Solve for the digits -- each letter stands for just one digit 0 to 9.

1.

```
          H A P P Y
        X       D A Y
      P X S P P E
    P H E E H X
  E X R E H R
  = E Y P P A R P E,
+ D M H M X A H S A
= M E R R Y X M A S
```

We trust you will have many 9065150046521.

2.

```
      A                  M E R R Y
+ W E R Y          + C H R Y S M A S
= W E H B          = C H H E B C C Y
```

```
      A                  H A P P Y
+   N E W          +         A S
+ Y E A R          +       C A N
= W H E M          +       B E
                   = E S R R P
```

M A P = N A P = M A N

We wish you 89868024.

3.

```
                      X M A S
H A P P Y ) N E W Y E A R S
            E Y X X M
            H R Y H W A
            H S X A Y M
  M E R R Y   R H E H E R
- X M A S     R H E H X S
= M X H Y Y           P R S
                      S S S
                      P R S
```

W A Y = N A Y

We hope you have 9716859641707930.

Season's Greetings and Best Wishes to All of You from the staff of COMPUTERS AND AUTOMATION.

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This advertisement will appear in:

Electronics — December, 1953
Tele-Tech — December, 1953
Electrical Equipment — December, 1953
Electronic Equipment — December, 1953
Proceedings of the I.R.E. — December 1953

SYE 53-22

THE END OF AN EPOCH:

THE JOINT COMPUTER CONFERENCE, WASHINGTON, D.C., DECEMBER, 1953

Alton S. Householder, Oak Ridge National Laboratory, Oak Ridge, Tenn.

In January, 1947, as the Harvard IBM Mark I was rounding out its third year of operation, Harvard University played host to the first general symposium on automatic computing machines. The differential analyzers were already well known, but the Mark I, the Eniac, and the Bell relay machines were only newly publicized. While these were the only machines then operating, work on the Harvard Mark II was well advanced; plans and hopes were numerous and bright. There were two basic time scales, measured respectively in biennia and in microseconds.

Six years and eleven months later, as the Eastern Joint Computer Conference assembled in Washington, members of the Conference could take advantage of seven different tours to see eight distinct machines within a radius of an hour's drive or less. Four of these machines are Univacs. The others are the Seac and Dyseac, the Narec, and the ERA 1101.

Exhibits at the Harvard meeting consisted of the Mark I itself, and of models and pictures used by the speakers. In Washington the exhibits filled two large rooms and a long hallway. Prominent among the exhibitors were the manufacturers of "small" general-purpose computers, with prices in five figures instead of six.

The Harvard meeting of seven years ago was anticipatory, the current Washington meeting retrospective. The "Conference Theme" at Washington was "Reliability and Requirements"; the first day was largely devoted to requirements, the next two to reliability: systems in the morning sessions, components in the afternoon sessions. The "requirements" discussed, incidentally, were for life insurance, air traffic control, weather prediction, and real-time control systems.

It was perhaps not intentional on the part of those who planned that reliability and operating experience should receive the major stress in the program, that the conference would therefore be predominantly retrospective in character. But one gets the clear impression that the field has reached a critical point, and that it remains to be seen whether this is to be followed by a decline, or by a new advance in directions yet to be marked out. It is of course true that challenging problems remain. But the "great idea" has now been realized in more than a dozen particular forms: the Remington Rand Univacs, the IBM 701's, the Princeton computer progeny, and others. And though there is much still that one can ask for -- smaller space, greater speed, less power consumption, better input and output -- nevertheless this is, as it were, more of the same. The planners of future conferences will not be able to escape a difficulty that will become increasingly serious until there is a new great idea. The difficulty lies in the fact that the field is on the way to disintegration into a hundred little fields of specialization.

Two directions appear possible as sources of the next "great idea". One is automation. The other is business applications, where, as with punched card machinery (and in contrast to the problems to which the Princeton computer progeny are adapted), the number of operations required per bit of input information is extremely low. Some problems of this nature were discussed during the first day of the current conference, but it was by no means clear that any great idea had emerged.

Each year the IRE, the AIEE, and the ACM, together sponsor a Joint Computer Conference in the East and another in the West. These conferences deal largely with construction, in contrast with the meetings of the ACM alone which are more concerned with use and applications. These conferences, as well as the ACM meetings, it is hoped, can do much to overcome the tendency observed above for the field to disintegrate into multiple specialties.

The Eastern Joint Computer Conference and Exhibition took place at the Hotel Statler, Washington, D. C., Dec. 8 to 10, 1953. About 1500 persons attended the conference. The registration fee included a copy of the Proceedings of the Conference.

Papers included the following:

The Use of Electronic Data Processing Systems in the Life Insurance Business, by M.E.Davis, Metropolitan Life Insurance Co.

Computer Applications in Air Traffic Control, Vernon I. Weihe, Air Transport Association of America

Data Processing Requirements for the Purposes of Numerical Weather Prediction, Joseph Smagorinsky, U. S. Weather Bureau

Digital Computers for Linear, Real-Time Control Systems, Ralph B. Conn, Jet Propulsion Laboratory, Institute of Technology

The MIT Magnetic Core Memory, W.T. Papian, Mass. Inst. of Technology

Reliability Experience on the OARAC, Robert W. House, Wright Patterson Air Force Base

Operating Experience with the Los Alamos 701, W.G. Bouricius, Los Alamos Scientific Laboratory

Acceptance Tests for the Raytheon Hurricane Computer, Prof. F.J. Murray, Columbia Univ.

Reliability of a large Reac Installation, B.D. Loveman, Reeves Instrument Corp.

National Bureau of Standards Performance Tests, S.N. Alexander and R.D. Elbourn, National Bureau of Standards

Experience on the Air Force Univac, Robert Kopp, Headquarters, U. S. Air Force

Electronic Tube and Crystal Diode Experience in Computing Equipment, J.A. Goetz, and H. J. Giesler, IBM Corporation

Reliability and Characteristics of the Illiac Electrostatic Memory, J.M. Wier, Univ. of Illinois

Electron Tube Performance in Some Typical Military Environments, D.W. Sharp, Aeronautical Radio, Inc.

Seac -- Review of Three Years of Operation, P. D. Shupe, Jr., and R.A. Kirsch, National Bureau of Standards

A Review of Ordvac Operating Experience, C.R. Williams, Ballistic Research Laboratory

Some Remarks on Logical Design and Programming Checks, H.H. Goldstine, Inst. for Advanced Study, Princeton

The Advantages of Built-In Checking, John W. Mauchly, Remington Rand

Recent Progress in the Production of Error Free Magnetic Computer Tape, W.W. Wetzel, Minnesota Mining and Manufacturing Company

Reliability of Electrolytic Capacitors in Computers, Mark van Buskirk, P.R. Mallory and Company

A Method of Reliability Specification and Its Application to Transistors, W.J. Pietenpol, Bell Telephone Laboratories

Case Histories in Resistor Stability, Jesse Marsten, International Resistance Company

Over 35 organizations had exhibits at the conference.

In addition to the tours to the eight large computers in Washington and vicinity, the program reported that the Potomac Yards in Alexandria, Virginia, which is the "freight classification terminal for all East coast north-and southbound freight trains , has an interesting tour demonstrating their operational utilization of standard IBM punch card equipment."

A copy of the proceedings can be ordered from the Joint Computer Conference, c/o A.I.E.E., 29 West 39 St., New York, N.Y.

ROSTER OF ORGANIZATIONS IN THE FIELD OF COMPUTERS AND AUTOMATION

(Supplement, information as of Dec. 10, 1953)

The purpose of this Roster is to report organizations (all that are known to us) making or developing computing machinery, or systems, or data-handling equipment, or equipment for automatic control and materials handling. Each Roster entry when it becomes complete contains: name of the organization, its address, nature of its interest in the field, kinds of activity it engages in, main products in the field, approximate number of employees, year established, and a few comments and current news items. When we do not have complete information, we put down what we have.

We seek to make this Roster as useful and informative as possible, and plan to keep it up to date in each issue. We shall be grateful for any more information, or additions or corrections that any reader is able to send us.

Although we have tried to make the Roster complete and accurate, we assume no liability for any statements expressed or implied.

This listing is a supplement, and contains only revisions or additions as compared with the cumulative edition of the Roster published in the November issue of COMPUTERS AND AUTOMATION, vol. 2, no. 8, and the supplement published in the December issue, vol. 2, no. 9.

Abbreviations

The key to the abbreviations follows:

Size
- Ls Large size, over 500 employees
- Ms Medium size, 50 to 500 employees
- Ss Small size, under 50 employees
  (No. in parentheses is approx. no. of employees)

When Established
- Le Long established organization (1922 or earlier)
- Me Organization established a "medium" time ago (1923 to 1941)
- Se Organization established a short time ago (1942 or later) (No. in parentheses is year of establishment)

Interests in Computers and Automation
- Dc Digital computing machinery
- Ac Analog computing machinery
- Ic Incidental interests in computing machinery
- Sc Servomechanisms
- Cc Automatic control machinery
- Mc Automatic materials handling machinery

Activities
- Ma Manufacturing activity
- Sa Selling activity
- Ra Research and development
- Ca Consulting
- Ga Government activity
- Pa Problem-solving
- Ba Buying activity
  (Used also in combinations, as in RMSa, "research, manufacturing and selling activity")

*C This organization has kindly furnished us with information expressly for the purposes of the Roster and therefore our report is likely to be more complete and accurate than otherwise might be the case. (C for Checking)

*A This organization has placed an advertisement in this issue of COMPUTERS AND AUTOMATION. For more information, see their advertisement. (A for Advertisement)

Notice: Commencing with this issue we are including the telephone number (if known) in the roster entry.

ROSTER

The Austin Co., Special Devices Div., 7o 9th Ave., New York 11, N.Y. / Watkins 4-3630 / *C
Systems and devices for automatic control in commerce and industry: analog, digital, data-handling, servo, electronic, electro-mechanical. Shaft position indicators and systems; cathode ray indicators and systems. Ls(division, 125; company, 25,000) Le(division, 1943; company, 1878) DASCMc RMSa

Cook Research Laboratories, division of Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill. (mail address), 8100 Monticello Avenue, Skokie, Ill. (location) / Keystone 9-2060/ *C
Magnetic data-recording systems; digital, analog, and hybrid information-processing systems; digital recording systems -- particularly for aircraft and airborne applications. Basic and industrial research in servomechanisms, air research, weather reconnaissance, guided missiles, etc., etc. Ms(320) DAIc RCa

Eckert-Mauchly Division, Remington Rand, Inc., 3747 Ridge Ave., Philadelphia, Pa., and elsewhere *C, *A
All purpose electronic digital computers. Univac Factronic System. Ls(600)? Se(1946) Dc RCMSa SEE also Remington Rand, Inc.

Engineering Research Associates, Div. of Remington Rand, Inc., 1907 West Minnehaha Ave., St. Paul, Minn., and 510 18th St. South, Arlington, Va. *C, *A
Digital computers; ERA 1101 and 1103 electronic digital computers; the Logistics Computer. Magnetic storage systems, including magnetic heads, magnetic drums, etc. Shaft-position indicator systems, self-recording accelerometers, analog magnetic recording systems, data-handling equipment, special purpose communications equipment, pulse transformers. Ls(750) Se(1946) Dc RMCPSa SEE also Remington Rand, Inc.

Hogan Laboratories, 155 Perry St., New York, N.Y./ Chelsea 2-7855 /
Circle computer, completed and under test; manufactured by this company. Digital high-speed printers. Associated with Nuclear Development Associates. Ms(60) Me(1929) Dc RMSa

Intelligent Machines Research Corp., 134 So.Wayne St., Arlington, Va. / Jackson 5-7226 / *C, *A
Devices for reading characters on paper, etc. Pattern interpretation equipment. Sensing mechanisms. Digital computer elements. Ss(10) Se(1951) Dc RCMSa

Laboratory for Electronics, 51 Pitts St., Boston 14, Mass. *C, *A
Analog and digital computers, special computers to suit customer requirements, delay lines (mercury, quartz), plug-in packages for computer applications, etc. Ls(700) Se(1946) DAc RMSa

Logistics Research Inc., 141 So. Pacific Avenue, Redondo Beach, Calif. *C, *A
Digital computers and computing systems (ALWAC). Data-reduction and data-handling systems, input and output equipment, automatic graph-plotters, large scale magnetic memories with "air-floated" magnetic heads, etc. Ss(35) Se(1952) DIc RMSa

Mathematisch Centrum, 2e Boerhaavesstraat 49, Amsterdam, Netherlands *C
Relay computer in use; electronic computer under construction. Ms(60) Se(1946) Dc RCPa

Monrobot Corp., Morris Plains, N.J. / Morristown 4-7200 / *C, *A
Monrobot automatic electronic digital computers. Subsidiary of Monroe Calculating Machine Co. Ss(32) Se(1952) Dc RMSa

Notifier Manufacturing Co., 239 South 11 St., Lincoln 8, Nebraska / Lincoln 5-2946 / *C
Automatic control machinery for fire alarms. Automatic control circuits, computer circuits, switching circuits. Se(1949) Ms(40) CIc RMSCa

Nuclear Development Associates, 80 Grand St., White Plains, N.Y. / White Plains 8-5800 / *A
Circle Computer, completed and under test; designed by this company. Associated with Hogan Laboratories. Ss Se DIc RMSa

Raytheon Manufacturing Co., Waltham, Mass. / Waltham 5-5860 / *C, *A
Electronic digital computer systems for scientific applications (RAYDAC), and for general accounting and data-handling applications. Tape-handling mechanisms, magnetic heads, magnetic shift registers, and other computer components and sub-systems. Computing service to analyze problems in applied mathematics, in engineering, and in industrial logistics by digital computer. Radar, fire control, microwave equipment, etc. Ls(20,000) Me(1925) DAc RMSa

Remington Rand, Inc., 315 4th Ave., New York 10, N.Y. / Spring 7-8000 / *C
Punched card machines, office machines, electronic digital computing systems (Univac Factronic System, ERA 1101, ERA 1103), servomechanisms. Ls(30,000; 1800 on computers) Le DASc RCMSa SEE also Eckert-Mauchly Division and Engineering Research Associates Division.

Servomechanisms, Inc., Post and Stewart Aves., Westbury, L.I., N.Y. / Westbury 7-2700 / and elsewhere *C
Automatic, electronic, and electro-mechanical control systems, instrumentation, and components. Analog computers. Ls(700) Se(1946) ASCc RMSa

Sylvania Electric Co., Radio and Television Division, 70 Forsyth St., Boston 15, Mass. / Kenmore 6-8900 / and elsewhere *C, *A
Electronic digital computers using printed circuit techniques. Subassemblies of diodes and triodes. Ls(2200; this division, 190) Le(1901; this division, 1945) DAc RMSa

U. S. Navy, Office of Naval Research, Special Devices Center, Port Washington, New York / Port Washington 7-3800 /
Ls Me(1946?) DASc RMCGBa

ROSTER OF ORGANIZATIONS MAKING COMPONENTS
(Information as of Dec. 10, 1953)

The purpose of this roster is to report organizations making components (but not making complete systems) that enter into computing machinery or data-handling equipment or equipment for automatic control and materials handling. Since this would be a very large list if we included all organizations making motors, resistors, magnetic cores, condensers, etc., this roster is not a free listing. For the conditions of listing, see page 27; also the listing is subject to editing for completeness and objectivity; for the abbreviations see the "Roster of Organizations in the Field of Automatic Computers and Automation".

ROSTER

Alden Electronic and Impulse Recording Equipment Co., Alden Research Center, Westboro, Mass. *A
Facsimile recording equipment and facsimile components. Ma SEE Alden Products Co.

Alden Products Co., 117 North Main St., Brockton, Mass. / Brockton 160 / *A
General and specific components for digital and analog computing machinery; plug-in components, sensing and indicating components, magnetic delay line units, magnetic storage cores, etc. Ms(300) Me(1930) Ic RMSa

Alfax Paper and Engineering Co., Alden Research Center, Westboro, Mass. *A
Electrosensitive recording papers. Ma SEE Alden Products Co.

Ferroxcube Corporation of America, 377 East Bridge St., Saugerties, N.Y./ Saugerties 1000 / *A
Ferrite core materials, including pot cores, cup cores, recording heads, and microminiature toroids with square hysteresis loop. Magnadur permanent magnet materials. Ms(100) Se Ic RMSa

Sprague Electric Co., 377 Marshall St., North Adams, Mass. *A
Capacitors: miniature, and low dielectric hysteresis loss, for computer applications. Standard capacitors; precision and power type resistors; pulse transformers; radio interference filters. Ls Ic RMSa

SAVINGS AND MORTGAGE DIVISION, AMERICAN BANKERS ASSOCIATION:

REPORT OF THE COMMITTEE ON ELECTRONICS, SEPT. 1953
(slightly shortened)

Joseph E. Perry, Chairman of the Committee, President, Newton Savings Bank, Newton, Mass.; Gustave Bottner, Vice Pres. and Comptroller, Dry Dock Savings Bank, New York; Walter F. Clow, Vice Pres., The First National Bank of Chicago; Robert F. Marchant, Vice Pres. and Treas., The Bank for Savings in the City of New York

This is the first report of a new Committee appointed to study the progress and prospects of a fascinating, bewildering new world still in the process of creation.

The long trek of the banking world from the sedate days of the quill pen, bound ledgers and stand-up desks to the incredible present started slowly but gathered speed by such leaps and bounds as the invasion of the typewriter, adding machine, computing machine, women workers, loose-leaf systems, punch cards, microfilming, and electronics. The pace has reached such a crescendo that this Committee hopes to serve as a liaison-catalyst to try to bring together those bankers who do not know what the inventors and manufacturers are making available and those inventors and manufacturers who do not know what the banking world needs.

Basically, banking still maintains its unchanging three-part functions of assembling money, investing it, and returning it to its owners on demand. In volume, range of service, and intricacy of operation it has grown almost beyond human comprehension, but the greatest changes have come in its mechanical operations. Great as these are, they may still be in their infancy, just as its newest wonder worker, electronics, is still in its infancy.

The Committee has started with the broad, and perhaps over-sanguine, assumption that the inventors and manufacturers can create equipment to perform any and every function the bankers may request; so the first step is to have the bankers decide what they want the inventors and manufacturers to provide.

As one writer (Ralph W. Fairbanks in "Electronics in the Modern Office", in September-October 1952 "Harvard Business Review") has stated, there are electronic machines already in existence that can do the following things at speeds which surpass human imagination. (1) Learn what you tell them; (2) Apply the instructions when needed; (3) Read and remember numbers; (4) Add, subtract, multiply, divide, and round off; (5) Look up numbers in tables; (6) Look at a result, and make a choice; (7) Do long chains of these operations one after another; (8) Write out an answer; (9) Make sure the answer is right; (10) Sort or arrange in alphabetic or numeric sequence; (11) Know that one problem is finished, and turn to another; (12) Determine most of their own instructions; (13) Work unattended.

The current, and probably transient, weakness in this prospect is the high initial investment cost and the fact that all material has to be preprocessed. If there are many repetitive operations to be performed, real economy of time and experience is possible, but in a considerable part of banking there are relatively few repetitive operations and by the time the pre-processing is completed most of the work is already done. The heavy initial expense makes these machines uneconomic unless they can be operated quite continuously at full capacity and can take the place of several human operators. However, much of the initial expense results from the necessity for disproportionate research and design and the absence of mass production. As the industry passes beyond the early experimental stages, it should be possible to produce in volume simpler equipment to handle all except the most complicated operations. Even with these qualifications, the Committee's assumption that the inventors and manufacturers can furnish anything the bankers want is sufficiently accurate to serve as a challenge to the bankers to analyze their needs and exercise their imaginations. The manufacturers admit freely that they are seeking this sort of guidance from the banks, and particularly from the small banks since they constitute the overwhelming bulk, in number, of all banking units.

What does the banker need? Our Committee has asked its own members and some others to suggest answers to this question and there are appended some of their replies.

Basically, the banker is in the field of service; so one of his primary objectives is to serve his customers quickly and economically. The customer who actually comes into the bank wants to transact his business with the utmost speed and comfort. Those who bank by mail ex-

pect somewhat less instantaneous service. Both want understandable records of their transactions. Some bank receipts and statements of the present day are baffling, if not unintelligible, to many customers.

Because banks are charged with a public interest, they must be audited and supervised; so, at present, all bank records must be visible and readable. However it should not be too much to hope that some way may be found to make auditing and supervision largely automatic, since electronics can check the accuracy of its own processes, thus reducing the enormous present expense of audit and examination. A mechanical memory that can store millions of items and recall and analyze them at will may eventually supplant not only auditing and examining but even the ledger and other written records.

Since banks handle money they are peculiarly vulnerable to defalcations. Can the magic wand of electronics make defalcations impossible or too difficult to be feasible?

Perhaps the first step is to reappraise all present procedures and eliminate the needless and streamline the rest.

Coming closer to operational needs, we find a machine already built, but not yet available on the market, that will punch or imprint a tape, either near at hand or in a remote location, by the same teller operation that gives the depositor his receipt. From that tape all sorts of subsequent operations are automatic. We have machines now available that compute and record interest; store, select, collate, analyze, and accumulate data; verify results and print visible records. What more do bankers want? At the end of this report are some of the answers thus far received. They involve some overlapping, but are phrased distinctly enough to merit quoting with almost no editorial revision.

This Committee of the American Bankers Association is willing to try to serve as an assembly point for such ideas. On the other hand the Committee will try to keep abreast, not only of new devices already developed, but will hope to get clear back to the drawing boards to see what the factories have in contemplation for the future. That is an ambitious program. It has been suggested that such a study should be carried on not alone by this Committee, but by a general committee composed of representatives of all interested Divisions of the American Bankers Association, of the various national, auditing and accounting associations, and, indeed, all of those whose interests are parallel, to the end that one authoritative voice might speak to the manufacturers and inventors with the promise of a great enough volume of business to command their attention. The suggestion has merit, but in the meantime this Committee will go forward on its own, but willing to co-operate with any other interested parties.

* * *

Appendix to Report of Committee on Electronics:

From A: Certain calculating features should be incorporated in the window posting machine, so that when deposits or withdrawals are processed, interest on the transaction will be calculated automatically and printed, and the balance plus interest extended to indicate the balance at the end of the period.

From B: Equipment should enable a teller to simultaneously record a transaction of a depositor in the bank book and on some bank record, automatically post, and mathematically prove all calculations required by the bank. The above-mentioned should be controlled for audit purposes by other than the teller.

In addition there should be some means of communicating or reviewing visually, by picture or facsimile, certain information requested by the teller. Relative to the teller's operation there should be an automatic means of dispensing to the depositor any cash requirements including bills and specie.

From C: As we see it, the things which we want most are automatic posting of the daily transactions and automatic computation of interest. Beyond this, if a teller's machine could be tied into the picture in some way, we would be interested in that also.

From D: This bank has pioneered a great many innovations in electronics. To ordinary tabulating, they have added electronic communication, by using television, from the file room on signatures and balance cards to the tellers in connection with their withdrawal procedure. They are experimenting with an automatic device to call to the tellers' attention any stop-payments on accounts whose numbers are punched into the NCR machine in the ordinary course of business. They are also inaugurating the use of a tape-punching machine coordinating with the tellers' machines so that the tape will automatically produce punched cards without the use of a key punch operator.

One big stumbling block in the way of deposit accounting on punched card machines is the problem of hand pulling and filing the necessary cards. The Committee should give this attention and try to develop some automatic device for doing this job. It seems to me a huge wheel file activated by a system

similar to dial telephoning could do the job.

Another problem to consider is inter-office communication, for those banks who use central bookkeeping for deposit accounting. There, perhaps, a coaxial cable could be used or a direct broadcast over a special shortwave band. Either will need further development.

From E: It seems to me that the answer to this question must be divided into the two major areas of savings operations: depositors' accounts, and mortgage accounting.

On depositors' accounts we would like a machine which, with an absolute minimum of teller activation, would post the transaction in a record for the depositor (without holding the manufacturers to the present form of depositors' records), would post the bank's record (ledger card or substitute), compute the interest, obtain an interest figure for the next dividend period - and prove the accuracy of the entire transaction.

On mortgagors' accounts we would like equipment which would provide a receipt on payments, provide a visual record on principal, interest and escrow amounts, post controls, compute interest and balances, prepare bills, produce annual statements for mortgagors - and again prove the entire operation.

All of this should be with a very minimum of clerical activation.

From F: Our first wish would be for a considerable increase in the speed of input and output of our present IBM machines.

Multiple use machines should be developed which would combine operations now performed separately by individual machines, such as computers, collators, listers.

A compact storage unit should be produced for names and addresses, with speedy access to any given account number, for purposes of changing or eliminating data. This machine should be capable of high speed printing of the recorded information either in its entirety or selectively.

Electronically controlled index files should be developed.

A machine should be made capable of printing both sides of a form simultaneously from different sources, such as accounting information on one side and names and addresses on the other side.

A great deal of clerical work of a fairly repetitive nature is performed by Accounting Department adjustment clerks. Pertinent data could be coded on the ledger cards similar to mark-sensing on punched cards. A machine could be developed which could scan or sense these codes and make the necessary computations.

On the banking floor we should like to see a machine which could operate without manual depression of keys. It also seems possible that this machine could post data, compute interest, extend balances and accumulate control totals.

From G: Aiming at the ultimate, we would want a device that will:

(1) Scan (in the case of mortgages a previously prepared bill or, in the case of banking floor transactions a customer prepared deposit or draft) and without the need for going through the intermediate step of preparing a tape or punch card, automatically, without any punching of keys by the teller, produce a receipt for the item (or post it in the passbook);

(2) List and accumulate totals in locked-in tape for all transactions for proof and audit purposes.

(3) Calculate new balances (and post in passbook in case of banking floor transaction);

(4) Prepare a posting medium (such as now used in "transfer posting") that can be used to post ledger cards, if desirable and accumulate totals so that old and new balance proofs can be obtained.

(5) Calculate next dividend or, in the case of mortgages, amount of next interest due and break down next installments into amounts due separately for principal, interest and tax account.

(6) Prepare, in the case of mortgages, a new customer bill including name and address, showing these new amounts and reproduce a receivable card for internal purposes, or in the case of depositors, a dividend card showing the tentative dividend and tentative new balance.

(7) At the cut-off dates, by scanning these receivable cards or last tentative dividend and depositor's balance card, run off registers for proof and entry purposes.

AUTOMATION IN THE KITCHEN

by Fletcher Pratt, author of "Ordeal by Fire"
and other books

One possibility for effective and useful automation seems to have been rather curiously neglected, although it is in an area where at least partial automation has been in effect for some time. This is the business of preparing meals.

Every housewife at least knows about automatic dishwashers, automatic mixing machines, and automatic slicers and peelers which always produce standard results. One type of electric stove on the market is already a fully automatic instrument; the housewife can place various dishes in the stove early in the morning, program it, go about her business for the rest of the day, and then at the end of the day take out her dinner completely cooked at exactly the hour she has specified.

What does this leave to be desired? Well, a good deal. The proof of this is in the continuing sales of cookbooks and the fact that practically every newspaper in the country runs a column in which women are advised how to plan and prepare meals. Working wives and single girls in business lack the time for the elaborate preparation of food in which their grandmothers indulged. They lack the time as well for the still more elaborate study of methods that preceded food preparation, and yet this very elaboration, both in study and process, is the secret of economical eating -- and also of good eating.

Now there would seem to be no particular reason why an electric stove could not be fitted with a device which would read a punched paper tape and deliver instructions to the already fully automatic operating units. Recipes would then consist of lists of ingredients accompanied by the appropriate tape prepared by an expert chef; the cake would never fall, the stew would always be a success, the casserole would always be correctly flavored. No skill beyond that of inserting the tape would be required to imitate the most recondite culinary preparations.

Yet if automation is really to lighten the work of the kitchen, this is only a beginning. Much of the labor of preparing food takes place in the pre-cooking stage -- the paring, cutting up, separating. This is not quite so easy to automatize as the actual cooking, but it still could be done by tape-programming of the appropriate existing instruments. The only question seems to be whether it would be worthwhile for anybody except a large family or some such institution as a restaurant, where the labor problem is considerable and the appearance of the result is an important factor. Yet surely such operations as mixing the batter for a cake or the filling for a pie, where precision is needed, could be performed by the use of tapes.

However, the automation of food preparation and cooking units -- probably with tapes that would carry the process from beginning to end -- by no means exhausts the possibilities of automation in connection with food. It is probable that when these possibilities begin to be realized, we shall all eat better than ever before and on a world-wide scale. The invention of deep freezing has already begun a major revolution in the processing of food, by making it possible to lay down fresh, and at long distances in time and space, foods that could never reach most people before except in less appetizing and less nourishing canned form -- witness fresh ocean fish in the Middle West, for instance, and strawberries in December. The invention has now developed the collateral industry of prepared partly-cooked dishes which are then quick-frozen, and require only a limited amount of cooking.

From a gourmet's point of view, the present-day products are seldom much better than average, since they are usually mass-produced and omit certain ingredients that some potential customers might find unpleasant. But this in turn has led a few institutions of guaranteed excellence, like Maxim's of Paris, to begin putting out partly-cooked, quick-frozen entire meals, which require a minimum of heating to become completely cooked. So far these meals have been used principally on air lines, and since kitchen equipment aboard a plane is somewhat meager, they have been limited to meals of which all dishes required the same time in cooking. But in these partly-cooked meals the future of automation in the kitchen is visible.

To begin with, there is no reason why the frozen meal should consist exclusively of items requiring the same amount of time, for the various parts of a meal can be packaged not only

(continued on page 26)

1. Western Computer Conference and Exhibit: Condensed from a release of the Western Computer Conference committee (H. G. Weightman, Chairman of Publicity, 1405 West Magnolia Blvd., Burbank, Calif.):

Place and Time: Ambassador Hotel, Los Angeles, Calif., Feb. 11-12, 1954.

Titles of Papers: Thursday Morning: Keynote Adress: Automatic Control and Data Processing. Thursday Afternoon: First Session: An Experimental Digital Flight Control System / The Digitac Airborne Control System (Hughes) / Use of Operational-Digital Techniques for a Simple Process Instrumentation / Machine-Tool Control Operating Through a Digital Analog Computer / Experiments with a Digital Computer in a Simple Control System. Second parallel session: Survey Paper / Typical Business Problem -- Unit Control Ready-to-Wear Department / Computer Characteristics / System Engineering/ Programming.

Friday Morning: five parallel discussion groups on: Unit Control in Retail Operations / Numerical Control of Chemical Processes / Numerical Control of Machine Tools / Maintenance Requirements for Business Computers / Mathematical Methods in Management Programming.

Friday Afternoon: First session: Survey of Analog-Digital Conversion Techniques/ High-Speed Multi-Channel Analog-Digital Conversion / Shaft to Digital Converter / High Speed Digital Computer for Control Applications / Input Switching System. Second parallel session: IBM Calculator 650 — Engineering and Design / Design Features of Remington Rand Speed Tally / The Elecom 125 Business System / A Centralized Data Processing System / A Merchandising Control System.

* * *

2. Shakuntala Devi, Mathematical Prodigy. From Walton Wickett, Oakland, Calif.:

Wednesday evening, October 14, Shakuntala Devi gave a demonstration of her ability before the Broadmoor Men's Club in San Leandro. The group comprised some 300 solid citizens with a minimum of mathematical knowledge. The performance was well-received, however.

Dressed in Indian costume and with the red Brahmin caste mark in her forehead, Miss Devi mentally extracted rational cube roots of 10-digit numbers, told the audience the day of the week for any particular date from 1876 to 1956, and, conversely, given the day of the month, and the year, proceeded to tell us the months. When someone gave her the 6th of the month, a Thursday, in 1945, she immediately replied that this could be either September or December. ....

While the audience was still going strong on dates, Miss Devi jumped to magic number squares. She did only one, beginning by asking someone to give her a five digit number and to say where it should be located. She then filled in the remaining four lines. Later, Miss Devi told me that this was a simple trick that she did not class in the same category as the date determination or the root extraction. It is easy, of course, to form a number square where digits horizontally and vertically and along one diagonal all add up to the same sum but where the digits along the other diagonal are identical and therefore will not ordinarily fulfill the magic square requirement. Miss Devi's permutations were much better behaved, and both diagonals summed the same. ...

Someone wanted her to do the trick again. She announced, however, that the time had come to discuss India; were there any questions? Questions came slowly at first, then with increasing tempo, and dealt with communism, Nehru, Gandhi, suttee, (no longer practiced), and the caste system.

How can you make a scientific article out of the foregoing? Well, here are some details on the root extraction. Miss Devi specified that the numbers had to have integral roots. She set no limit on the size of the numbers, but most of them turned out to be 10 digits. As the number was called out, the chairman wrote it down on a blackboard. Miss Devi then stepped up and, without anything more than momentary hesitation, proceeded to write the root beneath. One man gave her a number that she did not like. Very politely she asked him whether it had integral roots. He replied that it had and she then told him quite firmly that he was mistaken. It then developed that he had given her a number whose square root was an integral number rather than the cube root. Miss Devi was forthwith asked to obtain the square root, but she replied that tonight they were doing cube roots. Once during the course of the root extracting operations, she requested the chairman to call for greater order in the audience, saying that the noise was disturbing her thinking. I asked her for the cube root of 1,073,741,824. Suspicious, knowing in advance that I was trying to discover the nature of her ability, she challenged the number. I assured her it was correct and even checked it on a calculator that was there. Miss Devi then wrote down 1024, the correct root.

I drove Miss Devi home in my MG, forgetting in extending the invitation that she is inclined to car sickness. My expectations for information were thwarted by her announcing every half mile that unless we stopped the car, she would "put out". All that I learned was that she was not aware that in the late 18th century the calendar had been moved ahead 11 days when we went from the Julian to the Gregorian system. She said that this was of no matter for her inasmuch as no one ordinarily asked for anything but his birth date, many people happening to know what day of the week was the date of their birth.

When I asked Miss Devi for the cube root of a 12 digit number and for roots that are rational but not integral such as the square root of 6.25, she answered that she was very tired and would prefer not to think about these problems any more. She persisted in her claim, however, that she can obtain any root up to the 11th of numbers as high as 15 digits. She did not say this in so many words and would not, in fact, allow herself to be pinned down to any limits, nor would she give me a private demonstration. I suggested seeing her at some time when she was not tired and not feeling like "putting out" after each bump in the road, but she did not encourage the meeting; she said that if I did not now have sufficient information for an article, it would be better not to write the article at all.

My conclusion is that for some figures she does have an extraordinary memory, which she has attained quite naturally. It seems to me, however, she is afraid to have her ability analyzed for fear that, like the cutting of Samson's locks, the discovery of how she does what she does will either destroy the ability or else expose it as nothing so wonderful after all. Certainly in the handling of her audience, 300 good-natured men, more interested in being entertained than educated, she demonstrated a theatrical skill quite distinct from her mathematical talent.

She plans to be here in California for a few more weeks, after which she expects to go back to India via Canada unless she obtains additional speaking engagements. She is 23 years old and for the last three years has been giving programs in Europe. She seems quite frail, but she has managed entirely on her own, without an agent, and sends most of her income back to her parents in India.

Make from all this what you will.

* * *

3. Noted With Appreciation. From D.H. Peacock, Computing Devices of Canada, Ottawa, Ontario, Canada:

We are very interested in your publication, and feel that it is doing a tremendous amount of good in the electronic computer field.

"From the wallet of JOHN W. MAUCHLY" -- Remington Rand, Inc., Philadelphia, Pa.:

You are being congratulated (in the way that helps) on your efforts towards an improved communication in the computer field.

From Timothy Seldes, Doubleday and Co., New York, N.Y.:

Many thanks for the latest edition of your publication; as usual, excellent reading.

* * *

4. Monte Carlo Methods. From the Statistical Laboratory, University of Florida, Gainesville, Florida (Professor H. A. Meyer, Bldg. OE):

A Symposium on Monte Carlo Methods, sponsored by the Aeronautical Research Laboratory, Wright Air Development Center, will be conducted by the Statistical Laboratory, University of Florida, at Gainesville, on Tuesday and Wednesday, March 16 and 17, 1954. Those interested in the field are invited to attend.

An Eastern Regional meeting of the Institute of Mathematical Statistics is being planned for Thursday, March 18, 1954 at Gainesville. The Biometric Society, ENAR, is meeting on March 18, 19 and 20.

* * *

5. Imitation is the Sincerest Flattery. From Richard Rimbach, Publisher of Instruments, The Magazine of Measurement -- Inspection -- Testing -- Control, Pittsburgh, Pa.:

Attached you will find a letter which is now being sent out to possible subscribers, but we felt that you and our other friends, the subscribers to INSTRUMENTS, would like to be advised of developments ... Our publication ... beginning with the January issue, will be called INSTRUMENTS AND AUTOMATION ...

We hereby extend best wishes from COMPUTERS AND AUTOMATION to INSTRUMENTS and AUTOMATION. Perhaps we shall see before long magazines such as ELECTRONICS AND AUTOMATION and INFORMATION AND AUTOMATION, and perhaps even AUTOMATION by itself.

Pleasantries aside, the automatic handling of information is a big and revolutionary field, and worth the steadily increasing interest, attention and study which it is receiving.

WHO'S WHO IN COMPUTERS AND AUTOMATION: SECTION 2

-- BUSINESS, NOT PROGRAMMING

(Supplement, information as of Dec. 3, 1953)

This is a supplement to the first edition of a Who's Who of individuals in the field of computers and automation. The purpose of this Who's Who is to make it easier for all persons interested in this field to get in touch with each other in appropriate ways.

Contents. The following list consists of persons interested in computers or automation who have not reported as a main interest "programming" and who have reported as a main interest "business", for whom new or revised information has been received up to Dec. 3, 1953.

Reporting. If you are interested in any phase of computing machinery, robots, cybernetics, or automation, and if you would like to be included in the Who's Who, please send us: your name (please print), address, organization (and its address), your title, main interests (note list appearing under "Abbreviations" below, and specify any other interests), year of birth, your college or last school, years of experience in the field, your occupation, and any more information about yourself that you may care to furnish. (A blank for your Who's Who entry appears on another page in this issue). Your listing in the Who's Who does not depend in any way on your subscription to COMPUTERS AND AUTOMATION although of course your subscription will be welcome.

Entry. Each entry in the Who's Who when it becomes complete contains: name / title, organization, address / interests / year of birth, college or last school (background), years in field, occupation. The address has been substantially contracted to avoid the nuisance of unwanted mail. In cases where no information has been given (for example, about occupation) a "-" denotes omission.

Abbreviations. Since a great deal of information is to be presented, abbreviations have been extensively used. Nearly all these abbreviations can be easily guessed, like those in a telephone book. The letters A,B,C,D,E,M,P,S stand for main interests "Applications, Business, Construction, Design, Electronics, Mathematics, Programming, Sales", respectively, as provided for in the Who's Who entry blank.

Liability. Although we have tried to make each entry complete and accurate, we assume no liability for any statements expressed or implied.

Corrections. We shall be grateful for any information, additions, or corrections that any reader is able to send us.

A: Axelson, Kenneth S / mgr, Mgt Contr Dept, Peat, Marwick, Mitchell Co, Chic, Ill / AB / '22, Univ Chic, 1, consltnt

B: Basel, Theodore / meth engr, Statistical Tabulating Co, N Y C / AB, busn & res serv / '22, Columbia Univ (MA), 6, meth engr

Bayne, G W / -, G W Bayne & Assoc, Los Angeles, Calif / AB / '03, -, -, mngt consltnt

Bosgang, Alvin J / engr, RCA Victor, Camden, N J / AB, sys analysis / '29, CCNY (MA Math '50), 3, engr

Bridges, D B J / princ elecl engr, Battelle Memorial Inst, Columbus, O / ABES / '26, Nrthwn Univ, 1, res engr

Bristow, Frank M / asst acty, Conn Mutual Life Ins Co, Hartford, Conn / AB / '17, Univ Mich, 0, acty

Brodley, Robert / -, -, No Hollywood, Calif / ABS / '30, UCLA, -, student

Byrnes, William P / prod dev engr, Teletype Corp, Chic, Ill / ABE, input-output / '26, Univ Minn, 3, engr

C: Crawford, Perry / -, Future Demands Dept, IBM, N Y C / B / -, -, -, -

D: Davis, George H / asst acty, Life Ins Assoc of Amer, N Y C / BM / '10, Ind Univ, Harv Bus Sch, 0, acty

DeVries, Walter L / actl suprvr, Equitable Life Assur Soc, N Y C / ABEM / '06, Univ Iowa, 5, acty

Dietz, Herman G / ofc meth analyst, Cargill, Inc, Mnpls, Minn / AB / '08, Univ Minn, 10, analyst

Donat, Eugene R / stf asst, Tab Dept, Collins Radio Co, Cedar Rapids, Iowa / B, automation / '27, State Univ Iowa (BA), 7, -

F: Frasch, Fredric C / techl asst (mgt), Air Force Finance Center, Denver, Colo / AB, finance / '16, Hampden-Sydney, 2, mngt engr

G: Greely, Merrill S / mgr, Busn Mach Dept, Mich-Hospital Serv, Detroit / ABP / -, Int Accts Soc, 26, dept mgr IBM

H: Hagen, Glenn E / pres, Logistics Research, Inc, Redondo Beach, Calif / ABDS / '18, Wash Univ (MS Physics), 10, physicist

Harris, David H / asst acty, Equitable Life Assur Soc, N Y C / B / '24, Sherborne, Eng, -, acty

Holmes, Donald W / informn sys analyst, Battelle Memorial Inst, Columbus, O / ABDP / '27, Union Coll, 3, applcns analyst

K: Kahn, Edward / mgr mach meth, David D Doniger Co, N Y C / ABES, statcs mgt, tab meth / '18, CCNY, 13, -

L: Lang, Frank / mgr, Res Dept, Assoc Casualty & Surety Companies, N Y C / BE / -, -, -, -
LaPointe, James W / A/2c, Laughlin AFB, Del Rio, Tex / B / '22, Bliss Busn Sch, Columbus, O, O, clk typ
Larkey, Morris M / asst secy, The Larkey Co, Newark N J / ABM / '23, Carnegie Inst Tech, O, controller
Lida, Sidney L / appld sci rep, IBM Corp, Seattle Wash / ABM / -, Univ Kansas, 3, mathn
Logun, John E / statl coordinator, E R Squibb & Sons, Bklyn, N Y / ABCDEM / '12, Columbus Univ, -, -

M: Margolies, C R / indus desr, Functional De s Dept, RCA Victor, Camden, N J / ABCDS / '25, Syracuse Univ, 1, indus desr
Matey, Andrew B / dept suprvr, Elecncs Meths Dev Dept, Western Elec Co, N Y C / ABDEP / -, N Y U (BCS), 5, meths consltnt
Meader, Monroe H / owner, Meader Mgt Counsel, NYC / AB / '00, -, 25, consltnt

N: Nelsen, Reginald / suprvr, Tab Dept, Manhattan Life Ins Co, N Y C / AB, sys / '20, Pace Col, 3, -

O: Oxley, John E / -, New York Life Ins Co, NYC / ABM / '26, Cooper Union Sch Engrg (BEE'51), 2, actl student

P: Postley, John A / mbr techl stf, Hughes Res & Dev Labs, Culver City, Calif / ABMPS / '23, UCLA (BA Math), 6, hd order code sys grp
Price, Harold R / mgr (sys), Price Waterhouse Co, Chic, Ill / AB / '04, Univ Ptsbg (BS'31), -, -

R: Roberts, John B / res mgr, Engrg Res Lab, Du-Pont, Wilmington, Del / ABM / '13, MIT, 3, chem engr
Rounds, H J / vp, Benson-Lehner Corp, Los Angeles, Calif / ACDES / '21, Univ Calif, 5, engr
Rowles, Barry M / suprvr, Statl Unit, The National Supply Co, Ptsbg, Pa / BMPS / '27, Carnegie Tech, 2, -

S: Simms, Preston W / sales mgr, Telecomputing Corp, Burbank, Calif / ABS / -, Univ Wis, 2, salesman
Stern, Louis / stf asst, Ofc Meth, Westinghouse Elec Corp, Ptsbg, Pa / AB / '15, -, -, -
Sterrett, J Arthur / suprvr, Elec Acctg Mach, Hotpoint Co, Chic, Ill / BEP / '10, -, 18, -

Striegel, Albert L / secy, Electronic Mach Corp, Carson City, Nev / BD / '18, -, -

T: Taylor, Cecil F / stf mbr, Mgt Controls Dept, Peat Marwick Mitchell Co, Chic, Ill / AB / '18, Nrthwn Univ, Chic Campus, 1, mgt consltnt
Theis, John M / mgt controls consltnt, Peat Marwick Mitchell Co, Chic, Ill / AB / '15, DePaul Univ, Loyola Univ, Chic, Ill, 1, consltnt

V: van Oosten, L L / meth res dir, Allstate Ins Co, Chic, Ill / ABCDE / '10, Drake Univ, 17, -
Van Winkle, Robert E / cust engr, IBM Corp, Wichita Falls, Tex / BDE / '22, Univ Ill (EE'50), -, elecnc engr

W: Warner, Donald A / stf acctnt, New York Tel Co, N Y C / B / '17, Yale Univ, 10, acctnt
Warring, James E / dir, Overseas Sales, National Cash Register Co, Dayton, O / ABES / '09, DePauw Univ, 23, -
Wehenkel, Charles H / asst to proj engr, Bakelite Div, Union Carbide & Carbon Corp, N Y C / ABDS / '16, NYU, Sch Commerce, 18, meth analyst
Wickham, Francis X / IBM tab suprvr, Durkee Famous Foods, N Y C / AB / '27, Walter Hervey Jr Coll, 8, -

SECTION 3 — NOT BUSINESS, NOT PROGRAMMING

Contents. The following list consists of persons interested in computers or automation who have not reported as a main interest either "programming" or "business", for whom new or revised information has been received up to Dec. 3, 1953.

A: Aim, Samuel N / acty, -, N Y C / -/ '13, Univ Mich, -, -, consltnt
Armstrong, Ralph M / -, Amer Express Co, N Y C / A / '14, NYU, 17, IBM meths speclst
Avakian, Arra S / stf engr, Vectron, Inc, Waltham, Mass / ACDM / '12, MIT (ScD'35), 2, mechl engr

B: Barker, Dean R / tech asst to engrg vp, American Mach & Foundry, N Y C / ADE / '14, Tri-State Col, Indiana (BS'37 EE), 2, engr
Beek, J Allan / proj engr, Logistics Research Inc, Redondo Beach, Calif / ADM / '27, Calif Inst Tech, 3, log desr
Bisson, Gabriel H / -, -, August, Me / E, inventing, creative & sci res, &c / '06, Hawley School Engrg, Boston, -, -
Blumenthal, Edwin I / proj engr, Eckert-Mauchly Div Remington Rand, Phila, Pa / CDEM / '23, MIT, 6, elecl engr
Bornstein, Ira / engr, KAPL, General Elec Co, Schenectady, N Y / ADEM / '20, -, 3, nuclear engr
Brewer, A F / exec vp, Electronic Control Systems, Inc, Calif / ACDE / '17 Calif Inst Tech, -, elecnc engr
Brown, Henry Rhodes, Jr / autocontrol comp group leader, North Amer Aviation, Downey, Calif / ADES / '21, MIT (BSEE'43), 10, elecl engr
Brown, Keith G / engrg librn, Ft Worth Div, Convair, Tex / A, documentation / -, CCNY (BA'39), Columbia (BS'50), -
Brown, R Hunt / pres, Automation Consultants, NYC / - / '03, Yale Univ, -, elecl engr
Browne, Kenneth A / dir res, C & O Ry Co, Cleveland, O / A / '05, Cornell Univ, -, engr
Bryan, Floyd E / res engr (tech liaison), Douglas Aircraft, Santa Monica, Calif / ADE, analog-dig conv, data reduction, airborne telemetry / '08, Pac States Univ, 15, engr (res, specl dev des)
Bunn, Joseph N / coordinator, Annahill, Dallas, Tex / CD / '28, Jesuit (Dallas, Tex), 3, dir-mail advg

C: Castell, Ramon Pieras / dir del Grupo Escolar, Malaga, Spain / E, robots & cybernetics / -, -, -, -
Clark, George E, Jr / operns analyst, Operns Res Ofc, Johns Hopkins Univ, Chevy Chase, Md / ADE / '22, Univ Pa (MsEE), 4, elecnc engr
Cohn, Stanley H / math instr, Fournier Inst Tech, Lemont, Ill / ADM / '26, Indiana Univ, 2, teacher
Coit, Charles F / sr engr, Raytheon Mfg Co, Newton, Mass / ACDM / '20, Univ Rochester, 11, sys engr
Culbertson, James T / res assoc, Rand Corp, Santa Monica, Calif / D, nerve networks / '12, Yale (PhD'40), 10, scientist

D: Daniels, Lloyd H / elec engr, Waterways Experiment Sta, Miss / ACDE / '18, La State U, -, elec engr

COMPUTERS AND AUTOMATION -- BACK COPIES & REPRINTS

ARTICLES: October, 1952: Communication and Control in the Computing Machinery Field
The Parameters of Business Problems -- Edmund C. Berkeley
January, 1953: Brains: Electronic and Otherwise -- A. S. Householder
What Computers Do -- S. B. Williams
The Parameters of a Business Problem in Reading -- C. H. Dent
Automatic Computers on Election Night -- E. F. Murphy and E. C. Berkeley
March: Gypsy, Model VI, Claude Shannon, Nimwit, and the Mouse -- George A. W. Boehm, Science Editor, Newsweek
Water and Computers -- Henry M. Paynter, Jr., Mass. Inst. of Technology, and Neil Macdonald
The Concept of Automation -- E. C. Berkeley
The ERA 1103 Automatic Computer -- Neil Macdonald
April: The Art of Solving Secret Ciphers, and the Digital Computer -- Fletcher Pratt
Avenues for Future Development in Computing Machinery -- Edmund C. Berkeley
Hungarian Prelude to Automation -- Gene J. Hegedus
May: Compiling Routines -- Grace M. Hopper, Remington Rand
Mechanical Translation -- Andrew D. Booth, Birkbeck College, London
Medical Diagnosis -- Marshall Stone, University of Chicago
July: Machine Translation -- Y. Bar-Hillel, Mass. Inst. of Technology
Robot Traffic Policemen -- George A. W. Boehm, Science Editor, Newsweek
How to Talk About Computers -- Rudolf Flesch, Author of "Art of Plain Talk"
September: The Soviet Union: Automatic Digital Computer Research -- Tommaso Fortuna
Digital Computer Questionnaire -- Lawrence Wainwright
"How to Talk About Computers": Discussion -- G. G. Hawley and others
October: Computers in the Factory -- David W. Brown
The Flood of Automatic Computers -- Neil Macdonald
The Meeting of the Association for Computing Machinery in Cambridge, Mass., September, 1953 -- E. C. Berkeley
November: Who Will Man the New Digital Computers? -- John W. Carr III
Electronic Equipment Applied to Periodic Billing -- E. F. Cooley
Air-Floating: A New Principle in Magnetic Recording of Information -- Glenn E. Hagen
December: How a Central Computing Laboratory Can Help Industry -- Richard F. Clippinger
"Combined" Operations in a Life Insurance Company Instead of "Fractured" Operations -- R. T. Wiseman
"Can Machines Think?": Discussion -- J.L. Rogers and A. S. Householder

REFERENCE INFORMATION:

Roster of Organizations in the Field of Computers and Automation

Roster of Organizations Making Components

List of Automatic Computers

Who's Who in the Field of Computers and Automation

Books and Other Publications

Glossary

Patents

Price of back copies, if available, $1.25 each. A subscription (see rates on page 4) may be specified to begin with any issue from November, 1953, to date.

REPRINTS: Index No. 1 (from December issue) -- 20 cents
Glossary of Terms in the Field of Computers and Automation (from three 1953 issues) -- 60 cents

WRITE TO:

Edmund C. Berkeley and Associates
36 West 11 St., New York 11, N.Y.

Davis, Eugene L, Jr / aeronautical res sci, NACA, Langley Field, Va / EM / '25, Tulane Univ, 2, engr
Davisson, Owen / physicist, Frankford Arsenal, Phila, Pa / A / '12, Princeton Univ, 1, physicist
Denman, N A / apln engr, Basic & Experimental Science, Falmouth, Mass / logical des / '22, Drexel Tech, Stevens Tech, 3, mngt

E: Eaton, Carleton C, Jr / proj engr, Barkley & Dexter Labs, Boston, Mass / ACD / '19, MIT, 5, engr
Elion, Herbert A / engr-physicist, Farrand Optical Co, N Y C / ACDEM / '23, Polytech Inst Bklyn, 4, physicist

F: Faass, Donald L / stud, Univ Houston, Houston, Tex / ACDEM, '29, Univ Houston (Tex), student
Farnum, Henry Merritt / -, -, N Y C / A / -, Yale Law Sch, -, inventor

G: Gardiner, Thomas / elecnc techn, Comp Grp, Los Alamos Sci Lab, N Mex / CDE / '26, Tex Tech Col, 1, techn

H: Hawkins, J N A / elecnc engr, Rollin Co, Pasadena, Calif / DE, cryptography / '07, Stanford Univ, 15, servo-engr
Hayden, Howard P / techl pub engr, IBM Corp, Pkpsie, N Y / writing / '27, MIT (SB'50, SM'51 EE), 3, engr
Hendricks, G Donald / -, Eagle Signal Corp, Moline, Ill / DE / '11, Univ St Louis, 2, elecnc engr
Herold, Henry L / res engr, Logistics Res, Inc, Redondo Beach, Calif / ADE / '24, Calif Institute Tech, 1, log desgr
Holt, Arthur W / elecnc sci, Elecnc Comp Lab, Natl Bur Stds, Wash, D C / D, computer memory / '21, Williams, Harv Univ, 5, appld physicist

J: Johnson, David B / mech engr, EIT, Gen Mills Engrg Res & Dev Div, Minnpls, Minn / comp mach, robots, automation / '28, Univ Minn, 2, prof mechl engr
Jones, Donlan Francis / elecnc engr, Hughes Aircraft, Culver City, Calif / ACDEM / '30, Univ Santa Clara, 2, elecnc engr

K: Katzer, Albert E / proj engr, AC Spark Plug Div, Flint, Mich / AD / '24, Gen Motors Inst, 2, engr
Kell, John A / res engr, C & O Ry Co, Cleveland / A / '16, Polytech Inst Bklyn, -, engr
Koch, Theodore F / stf asst industl engrg, Motorola, Inc, Chic, Ill / ACD, automation equipment / '18, Univ Fla, -, mechl engr

L: Lilly, Richard G / asst to dir engrg, Ultrasonic Corp, Camb, Mass / AD / '25, Univ Pa, (MS EE), 2, elec engr
Luft, John H / physician, Peter Bent Brigham Hosp, Boston, Mass / ACE, biological applcns / '27, Univ Wash, Seattle, 1, medl interne

M: Mautner, L / pres, Electronic Control Systems, Inc, Calif / ACDE / '17, MIT, -, elecnc engr
Mentink, Anthony F / techl engr, Analog Comp Lab, Gen Elec Co, ANPP, Evendale, O / DEM / '23, Univ Cincinnati, 1, elecl engr
Miller, Melvin M / techl writer, Jackson & Moreland, Dorchester, Mass / ADE, med res / '27, Nwn Univ, 1, techl writer

N: Nielsen, K L / hd, Math Div, U S Naval Ordnance Plant, Indnpls, Ind / M / '14, Univ Ill, (PhD), 10, mathn
Noe, Jerre D / hd, Circ & Sys Grp, Stanford Res Inst, Menlo Pk, Calif / ACDE / '23, Univ Calif (BS), Stanford (PhD), 3, elecl engr

P: Painter, Norman H / chf, Fire Contr Grp, Inst Air Weapons Res, Univ Chic, Museum Sci & Ind, Chic, Ill / AE / '20, MIT, -, appld mathn
Perez, Abraham A / dev & des engr, Engrg Products Dept, RCA Victor Div, Camden, N J / ACDEM / '20, MIT (MS'49), 5, civil engr, meteorologist & physt
Pfanstiehl, Alfred / engr, Engineering & Res Corp, Riverdale, Md / ADE, flight simulators, computers (analog) / '19, Univ Chic (BS Physics), 4, field engr

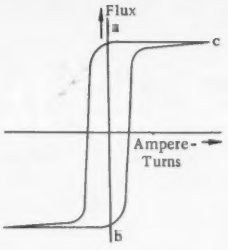
R: Rehler, Kenneth M / vp, Computer Control Co, Belmont, Mass / ADE, magnetic aplns / '22, MIT, 6, elecl engr
Richards, Paul I / physicist, Transistor Products, Inc, Boston, Mass / AD / -, -, -, -
Roberts, Virgil M / elecn, Willys Overland Motors, Toledo, O / ACDEM / '15, Ft Miami Sch, O, -
Robertson, Allan S / mgr, Gen Apparatus Sales, Union Switch & Sig Div, Westinghouse Air Brake Co, Swissvale, Pa / AES / '08, Univ Calif, MIT, -, sales mgr

S: Schmid, Fred C / patent license engr, Western Elec Co, N Y C / AD / '07, Lehigh Univ, 3, engr
Schrader, George F / asst prof, Elecl Engrg Dept, Univ Florida, Gainesville / AEM / '20, Univ Fla, 4, teaching & res
Shanahan, William J / chf engr, Skiatron Elec & TV, N Y C / DE, elec des / -, Cooper Union, Bklyn Polytech, -, engr
Spencer, Roy C / chf, Antenna Lab, AF Cambridge Res Center, Camb, Mass / AM, micro-wave optics & antenna / '01, Cornell, Columbia U, O, physt
Staderman, Paul / hd, Comp Br, USN Specl Devices Center, Pt Wash, N Y / ACDEM / '20, Univ Ill (BA), Univ Iowa (MS), -, -
Stephenson, Richard O / res engr, Logistics Res Inc, Redondo Beach, Calif / DE / '26, Univ Calif (Berkeley), 3, elecnc engr
Stoker, Warren C / hd, Comp Lab, Rensselaer Polytechnic Inst, Troy, N Y / AE, analog comp & dig-analog converters / '12, Renss Poly Inst, 10, -
Summers, Charles / techl engr, Analog Comp Lab, Aircraft Nuclear Propulsion Dept, Sys Engrg Grp, Gen Elec Co, Evendale, O / AEM, analog comp, simuln sys / '21, Ohio State Univ (BSc Physics), 1, techl engr
Swartz, C A / res geophysicist, United Geophysical Co, Pasadena, Calif / M / '05, Calif Inst Tech, 2, geophysicist
Sykes, H F, Jr / Colonel, U S Army / A, applcn to military prgrmng problem / -, -, -, -

W: Westlake, Philip Radcliffe / proj engr, Consolidated Engrg Corp, Pasadena, Calif / ACDEM / '19, Columbia Univ, 5, elecnc engr
Williams, Charles R / vp, Logistics Research Inc, Redondo Beach, Calif / E / '18, Calif Inst Tech, 6, elecnc engr
Woodin, Elmer Albert / stud, Univ Md (EE), Baltimore, Md / EM / '29, Univ Md, O, student
Wooley, Lawrence F / self-emp, Atlanta, Ga / A, cybernetics, mechanism of mental illness / -, U Utah, Johns Hopkins U, O, psychiatrist & physn

PUT THIS HYSTERESIS LOOP TO WORK FOR YOU!

You probably have been intrigued or are all ready working with the new nickel-iron alloy which has this bi-stable hysteresis curve. It makes possible pulse storage without power, pulse transfers at varying rates, pulse conversions from serial to parallel - while eliminating many vacuum tubes or mechanical devices otherwise necessary.



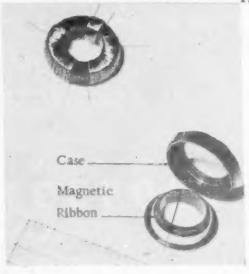
MATERIAL - a grain-oriented heat-treated alloy of nickel-iron with an extremely rectangular hysteresis loop, magnetically saturable in a given direction by application of a relatively weak magnetizing field. Once magnetized, removal of the magnetizing force leaves core in either state "a" or "b", depending on original direction of magnetization.

SIMPLIFY YOUR DESIGN PROBLEMS- USE THE STANDARD ALDEN STATIC MAGNETIC UNITS- IMMEDIATELY AVAILABLE

in high volume at low cost - Get your lab working - Send for literature and order samples of either --

ALDEN MAGNETIC STORAGE CORES

4 Alden Magnetic Storage Cores (#725BWA-1) containing 2-1/8 wraps of 1 mil grain-oriented, heat-treated, nickel-iron alloy, 1/8" wide - with 75, 150, and 200 turns of #36 wire. $5.00*



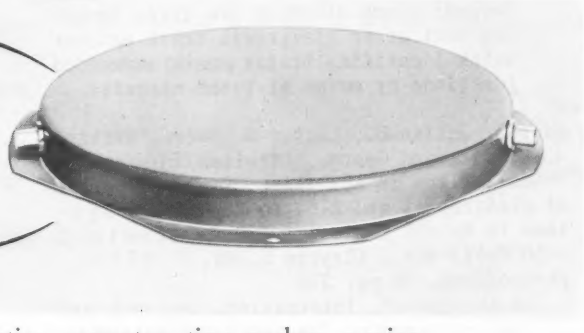
ALDEN STATIC MAGNETIC MEMORIES OR LINES

2 Alden Static Magnetic Memories (#5100RA) consisting of miniature toroidal core having 3 windings mounted on terminal card with resistor and rectifier coupling circuit. $10.00*

*Prices in accordance with our Standard Component Proposal of 10/15/49, limited to this offer only.

ALDEN PRODUCTS COMPANY (NA-ALD) **114 N. MAIN STREET, BROCKTON MASSACHUSETTS**

LFE
solid delay lines stop time



Available for video integration, computers, time markers, moving target indication, etc.

LFE Solid Delay Lines offer important advantages in obtaining precise delay intervals for pulse or modulated signals:

Wide ranges of delay	Smooth pass band
Low attenuation	Wide temperature range
Low spurious response	Minimum size and weight
Wide bandwidth	Rugged construction

For complete information, write: SPECIALTIES DIVISION

L/E

LABORATORY for ELECTRONICS, INC.

75-9 PITTS STREET • BOSTON 14, MASS.

BOOKS AND OTHER PUBLICATIONS
(List 6: COMPUTERS AND AUTOMATION, vol. 3, no. 1, January, 1954)

This is a list of books, articles, periodicals, and other publications which have a significant relation to computers and automation and which have come to our attention. We shall be glad to report other information in future lists, if a review copy is sent to us. The plan of each entry is: author or editor / title / publisher or issuer / date, publication process, number of pages, price or its equivalent / a few comments. If you write to a publisher or issuer, we would appreciate your mentioning the listing in COMPUTERS AND AUTOMATION.

1. American Society of Mechanical Engineers / Digital and Analog Computers and Computing Methods: symposium, June 1953 / American Society of Mechanical Engineers, 29 West 39 St., New York 18, N. Y. / 1953, printed, -, -
   Contains "High Speed Digital Computers and their Application to Problems of Applied Mechanics" by S. N. Alexander, "Automatic Solution of Mechanical Problems" by E. L. Harder, and four more papers of a more technical nature.

2. Carroll, John M / "Electronic Equipment in Railroading" in "Electronics" August, 1953, pp 130-135 / McGraw-Hill Publishing Co., 330 West 42 St., New York 36, N. Y. / 1953, printed, 436 pp, 75¢
   Discusses uses of electronics in railroading, such as remote signaling, weighing freight cars, televising car numbers and inspecting tracks for defective rails. Several block diagrams are given including that of an electronic train watcher which identifies trains passing unattended junctions by means of tuned circuits.

3. Edison, Julian E., Lester S. Morse, Richard A. Pizitz, and George Sternlieb / Electronics —New Horizon in Retailing: The Application of Electronics and Electro-Mechanical Systems to Retail Control / AER Associates, 6450 Cecil Ave., Clayton 5, Mo. / 1953, photooffset, 94 pp, $10
   A thoughtful, interesting, complete, and well-documented "research report prepared by a group of students at the Harvard Graduate School of Business Administration, in partial fulfillment of the requirements of the course in retail distribution". Describes retail store information-handling needs and present and proposed systems for meeting those needs, including up-to-the-minute developments. Discusses recent advances in the punched card and electronic fields, the attitude of retailers towards research and rethinking, etc.

4. Fortune, staff of / "The Automatic Factory" in "Fortune", October 1953, pp 168 ... / Fortune Magazine, 9 Rockefeller Plaza, New York, N. Y. / 1953, printed, $2?
   Abridged report of a round-table discussion by invited participants, 14 from business, 2 from universities. Questions discussed include progress to date in automation, role of electronics and high-speed computers, social implications of automatic factories, etc.

5. Hastings, Cecil Jr., and James P. Wong, Jr. / "The Incomplete Approximator (In Six Fits)" / The Rand Corporation, Santa Monica, Calif / June 12, 1953, photooffset, 21 pp, limited distribution
   An attractively illustrated, somewhat technical, brief report on curve fitting, having in view computation. Tchebycheff ploynomials are used to illustrate polynomial approximation. Two examples are worked out in considerable detail.

6. Institute of Applied Logic / The Journal of Computing Systems, Vol. 1, No. 3 (quarterly) / The Institute of Applied Logic, 45 W. Water St., St. Paul 1, Minn. / July, 1953, photooffset, pp 111-199, $5 a year
   The third issue, July, 1953, contains 8 technical papers dealing with symbolic logic and decision elements.

7. Institute of Radio Engineers / Convention Record of the IRE, 1953 National Convention, Part 7, Electronic Computers / Institute of Radio Engineers, 1 East 79 St., New York 21, N. Y. / 1953, photooffset, 71 pp, cost?
   Contains 15 papers given at Sessions 4, 10, 14, of the March 1953 convention; subjects, electronic computers, diagnostic programs, marginal checking. All the papers are technical.

8. Institute of Radio Engineers / Proceedings of the IRE, October 1953, (monthly), vol. 41, no. 10, "Computer Issue" / Institute of Radio Engineers, 1 East 79 St., New York 21, N.Y. / 1953, printed, 350 pp (excl advtg), $13 a year minimum?
   Contains 41 papers, most of them technical, some of them nontechnical, and many of them excellent. Important.

9. Institute of Radio Engineers' Professional Group on Electronic Computers / Transactions,

REPLY FORMS: Who's Who Entry; Reader's Inquiry

Paste label on envelope:↓ Enclose form in evelope:↓

BUSINESS REPLY LABEL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

4¢ Postage Will Be Paid By—

EDMUND C. BERKELEY AND ASSOCIATES

36 West 11th Street

New York 11, N. Y.

FIRST CLASS

PERMIT NO 1680

Sec. 34.9, P. L. & R.

NEW YORK, N. Y.

IDENTIFICATION

Name (please print).....

Address.....

Organization (& address)?.....

Title?.....

Please fill in completely

WHO'S WHO ENTRY FORM

Year of Birth?.....

MAIN INTERESTS:

( ) Design
( ) Construction
( ) Applications
( ) Sales
( ) Electronics
( ) Mathematics
( ) Business
( ) Programming
( ) Other (specify):

College or last school?.....

Year of entering the computing machinery field?.....

Occupation?..... (Enclose more Information about yourself if you wish — it will help in your listing.)

READER'S INQUIRY FORM

Please send me additional information on the following subjects for which I have circled the CA number:

1	2	3	4	5	26	27	28	29	30	51	52	53	54	55	76	77	78	79	80	101	102	103	104	105	126	127	128	129	130
6	7	8	9	10	31	32	33	34	35	56	57	58	59	60	81	82	83	84	85	106	107	108	109	110	131	132	133	134	135
11	12	13	14	15	36	37	38	39	40	61	62	63	64	65	86	87	88	89	90	111	112	113	114	115	136	137	138	139	140
16	17	18	19	20	41	42	43	44	45	66	67	68	69	70	91	92	93	94	95	116	117	118	119	120	141	142	143	144	145
21	22	23	24	25	46	47	48	49	50	71	72	73	74	75	96	97	98	99	100	121	122	123	124	125	146	147	148	149	150

Sept. 1953 (quarterly), Vol. EC-2, No. 3/ Institute of Radio Engineers, 1 East 79 St., New York 21, N.Y. / 1953, printed, 27 pp, $15 a year

Contains three technical papers, and 8 pages of reviews of articles and books.

10. International Business Machines Corp./ Operator's Guide -- Electric Punched Card Accounting Machines / International Business Machines Corp., 590 Madison Ave., New York 22, N.Y. / 1951, printed, 112 pp, limited distribution

A good clear explanation of IBM card punches, sorters, tabulators, automatic carriages, interpreter, reproducing punches, collators, and their operation. Does not include plugboard wiring. With review questions to test understanding.

11. John Plain and Company / The Story of the 140 Girl-Power Distributon / John Plain and Company, 444 West Washington Street, Chicago 6, Ill. / 1953, 36 pp, printed, free

An interesting, illustrated, simply-written account of a magnetic drum inventory machine with 39,000 registers, made by Engineering Research Associates, in practical use in a Chicago mail order house.

12. Life Office Management Association / "Electronics Seminar": papers presented at the Spring Conference, May 25, 1953/ Life Office Management Association, 110 East 42 St., New York, N.Y. / 1953, photooffset, about 70 pp, cost?

A collection of seven very good papers on problems of use and application of electronic information-handling equipment in the life insurance business. Full of ideas; not hard to understand.

13. Markus, John / "Remotely-Steered Coal-Mining Machine" in "Electronics" August, 1953, pp 148-151 / McGraw-Hill Publishing Co. Inc., 330 West 42 St., New York 36, N.Y. / 1953, printed, 436 pp, 75¢

"Nobody goes underground". The operator in the control room outside of the mine watches two cathode ray tube screens as the machine drills, scrapes and burrows its way into the hill. The signals are proportional to the softness of the coal or the hardness of the surrounding shale or sandstone. The machine makes a hole 10 feet wide, 3 feet high, and 700 feet deep into the side of the hill passing out coal on conveyor belts.

14. National Bureau of Standards / Projects and Publications of the National Applied Mathematics Laboratories, A Quarterly Report, July through September 1953 / National Bureau of Standards, Washington, D. C. / Oct. 1953, 74 pp, photooffset, limited distribution

Contains reports on approximately 100 mathematical and computational projects of various types.

15. Research Laboratory of Electronics / Quarterly Progress Report, Oct. 15, 1953 / Research Laboratory of Electronics, Mass. Inst. of Technology, Cambridge 39, Mass./ 1953, photooffset, 60 pp, limited distribution

Contains reports on 60 projects in physics, electronics, communication research, analog computer research, etc.

Manuscripts. We desire to publish articles that are factual, useful, understandable, and interesting to many kinds of people engaged in one part or another of the field of computers and automation. In this audience are many people who have expert knowledge of some part of the field, but who are laymen in other parts of it. Consequently, a writer should seek to explain his subject, and show its context and significance. He should define unfamiliar terms, or use them in a way that makes their meaning unmistakable. He should identify unfamiliar persons with a few words. He should use examples, comparisons, analogies, etc., whenever they may help readers to understand a difficult point. He should give data supporting his argument and evidence for his assertions. An article may certainly be controsial if the subject is discussed reasonably. Ordinarily, the length should be 1000 to 4000 words, and payment will be $10 to $50 on acceptance. A suggestion for an article should be submitted to us before too much work is done. To be considered for any particular issue, the manuscript should be in our hands by the 5th of the preceding month.

PATENTS

by Hans Schroeder, Milwaukee, Wisconsin

The following is a compilation of patents pertaining to computers and associated equipment from the Official Gazette of the United States Patent Office, dates of issue as indicated. Each entry consists of: patent number / inventor(s) / assignee / invention.

October 20, 1953: 2,656,100 / C S Mundell, Carmichaels, Pa / - / Device for computing averages using mechanical dials

2,656,101 / R P Haviland, Scotia, N Y / General Electric Co, New York, N Y / Function generator using a cathode ray tube with a mask, shaped like a graph of the required function

2,656,102 / R M Redheffer, Cambridge, Mass / U S A, Secy of the Navy / Electrical apparatus for evaluating the summation of the products of a plurality of terms

2,656,106 / H P Stabler, Williamstown, Mass / U S A, Secy of the Navy / Shaft position indicator having a reversible counter

2,656,460 / B McMillan, Summit, N J / Bell Telephone Labs, New York, N Y / Vacuum tube circuit counting the difference between two inputs

2,656,485 / C H Page, Silver Spring, Md / U S A, Secy of the Army / Control circuit for electrostatic memory tubes

October 27, 1953: 2,657,348 / J Jarvis, Dumont, N J / Bendix Aviation Corp, Teterboro, N J / Null seeking servo system

2,657,377 / F Gray, East Orange, N J / Bell Telephone Labs, New York, N Y / Novel pick-up for magnetic records using a multiplicity of sensing elements in connection with a special type cathode ray device

November 3, 1953: 2,657,856 / R A Edwards, Schenectady, N Y / General Electric Co, New York, N Y / Electric device for converting a number of one radix to its equivalent of a different radix, e.g., decimal to binary

2,657,857 / J Carreyette, Clifton, Bristol, England / British Overseas Airways Corp, Brentford, England / Mechanical analog for determining the center of gravity of a loaded airplane

2,658,139 / A Abate, Waltham, Mass / Raytheon Mfg Co, Newton, Mass / Circuit for converting binary pulses to DC voltages

2,658,166 / W A Depp, Mountainside, N J / Bell Telephone Labs, New York, N Y / Gaseous discharge tube giving binary output for decimal input due to the spatial arrangement of a number of cathodes, governing their firing sequence

November 10, 1953: 2,658,670 / G A Morton, L E Flory, Princeton, and R L Snyder, Jr, Glassboro, N J / RCA / Rate detecting device using a number of electron tubes and a cathode ray tube with electrostatic storage

2,658,674 / S Darlington, New York, N Y, and Alexis A Lundstrom, East Orange, N J / Bell Telephone Labs, New York, N Y / Artillery computer having deck tilt and gun parallax correction factors

2,658,675 / S Darlington, New York, N Y, and Alexis A Lundstrom, East Orange, N J / Bell Telephone Labs, New York, N Y / Tilt corrector for fire control computers

2,658,681 / R L Palmer, Poughkeepsie, J E Fernekees, Wappingers Falls, J A Haddad, Fishkill, B E Phelps, Wappingers Falls, and J V Williams, Jr, Poughkeepsie, N Y / IBM / Programming control device

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(continued from page 13)

together but also separately. Nor is it necessary in all cases to apply pre-cooking, on the value of which from any other point of view than that of the airlines there is still some doubt. But an assembled meal, or its separate ingredients, could certainly be packaged in frozen form with paper tapes attached to be fed into the electric stove in the home. The presence of the tape would in no way hinder the use of the contents in a kitchen that lacked an electric stove or lacked one with the tape-reading attachment. Yet the net result might be to make available to every table the products of the greatest restaurants in the world.

More than this: it is not necessary to water down the quality of such delicacies by mass-production methods, or to produce each by the expensive method of turning it out individually. With automatized kitchens, it should easily be possible for the chef to turn out perfection in a given dish and then make as many more as desired by playback methods. A failure -- and even the best chefs sometimes have them -- would involve no more than repeating the process and making a new tape.

More than this, even: one of the major features viewed with alarm by viewers with alarm is the apparent decline on a world basis of the ability to produce food as population increases. Actually, one should not say "to produce food", for there are oceanic and tropical areas where large quantities of food could be produced if it could be marketed efficiently. The combination of deep freezing and automatic kitchens would make it possible to prepare this food in meals at the point of production, thus eliminating waste and cutting transportation cost.

ROSTER OF ORGANIZATIONS MAKING COMPONENTS -- CONDITIONS FOR LISTING

Any organization making components that can be used in computing machinery or data-handling equipment or equipment for automatic control or materials handling may be listed in the "Roster of Organizations Making Components". The cost for the listing is $3.50 a line with a minimum of four lines (a "line" consists of 80 characters including spaces); if a company making components advertises in the same issue, it will receive a four-line listing free. The listing will be subject to the customary editing for completeness and objectivity.

If you are interested in a listing for your organization, please supply the information for a Roster entry (see p. 9) and write to Edmund C. Berkeley and Associates, Publishers of COMPUTERS AND AUTOMATION, 36 West 11 St., New York 11, N. Y.

ADVERTISING IN "COMPUTERS AND AUTOMATION"

Memorandum from Edmund C. Berkeley and Associates
Publishers of COMPUTERS AND AUTOMATION
36 West 11 St., New York 11, N. Y.

1. What is "COMPUTERS AND AUTOMATION"? It is a magazine published monthly, except June and August, containing articles and reference information related to computing machinery, robots, automatic controllers, cybernetics, automation, etc. One important piece of reference information published is the "Roster of Organizations in the Field of Computers and Automation". The basic subscription rate is $4.50 a year in the United States. Single copies are $1.25. The magazine was called THE COMPUTING MACHINERY FIELD until the March, 1953, issue; prior to that issue, it was published less often than ten times a year.

2. Who are the logical readers? The logical readers of COMPUTERS AND AUTOMATION are some 3000 persons who are concerned with the field of computers and automation. Many people are entering this field all the time. These include a great number of people who will make recommendations to their organizations about purchasing computing machinery, similar machinery, and components, and whose decisions may involve very substantial figures. We have been carefully gathering the names and addresses of these people for some time and believe we can reach them. The print order for the January issue was 1600 copies. The paid subscriptions on December 10, 1953 were a little over 1000. The overrun is largely held for eventual sale as back copies.

3. What type of advertising does COMPUTERS AND AUTOMATION take? The purpose of the magazine is to be factual and to the point. For this purpose the kind of advertising wanted is the kind that answers questions factually. We recommend for the audience that we reach, that advertising be factual, useful, interesting, understandable, and new from issue to issue. We have had a number of comments expressing satisfaction with our style of advertising.

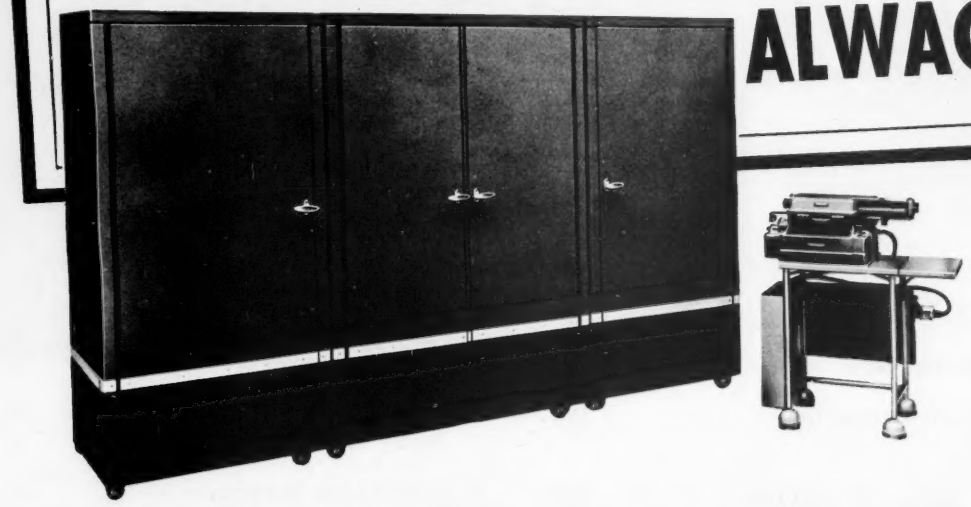
4. What are the specifications and cost of advertising? COMPUTERS AND AUTOMATION is published on pages 8½" by 11" and produced by photooffset. The closing date for any issue is approximately the 10th of the month preceding. If possible, the company advertising should produce final copy, which should be actual size and assembled, and may include typing, writing, line drawings, printing, screened halftones, etc. — any copy that may be photoffset without further preparation. If inconvenient to produce this, we will take rough copy and arrange with the printer to prepare it; there will be small additional charges in this event. Display advertising will be sold in units of full pages (ad size 7" by 10", basic rate $130), and half pages (basic rate $70); back cover, $250; inside front and back cover, $160. Classified advertising will be sold by the word (40 cents a word), with a minimum of ten words. The following discounts will apply to display advertising excluding cover space: 20% for a company with less than 50 employees and a publisher of books; 40% for a company of less than 20 employees.

5. Who are our advertisers? Our advertisers in recent issues have included the following companies, among others:

Alden Products Co.
Burroughs Corporation
Computing Devices of Canada, Limited
Consolidated Engineering Corp.
Electronic Associates, Inc.
Ferranti Electric Co.
Ferroxcube Corp. of America
General Ceramics and Steatite Corp.
Hughes Research and Development Lab.
Intelligent Machines Research Corp.
International Business Machines Corp.
Laboratory for Electronics
Logistics Research, Inc.
The Macmillan Co.
Monrobot Corp.
Monroe Calculating Machine Co.
George A. Philbrick Researches, Inc.
Potter Instrument Co.
Raytheon Mfg. Co.
Reeves Instrument Co.
Remington Rand, Inc.
Sprague Electric Co.
Sylvania Electric Products, Inc.
Telecomputing Corp.

ANNOUNCING...

ALWAC



FULLY-AUTOMATIC, ELECTRONIC DIGITAL COMPUTER

for Commercial and Technical Use

The ALWAC is a general purpose digital computer with internally programmed magnetic drum. Designed primarily for use by small commercial and technical organizations having large computational requirements, this machine is operable without specially trained computer staffs.

The ALWAC is a serial, binary computer with automatic conversion from decimal-to-binary and binary-to-decimal during input and output accomplished by an internally programmed routine. Recirculating working channels and arithmetic registers permit high computational rates as a result of the low access times in these stores. The extensive repertoire of commands in conjunction with the unique method of addressing makes it relatively simple to program new problems for the ALWAC.

TECHNICAL APPLICATIONS

Data reduction
Trajectory studies
Solutions of
Simultaneous equations
Matrix algebra and
Matrix inversion
Partial differential equations

COMMERCIAL APPLICATIONS

Payroll Computation
Inventory Control
Amortization Schedules
Statistical Analyses
Cost Accounting
Production Control
Problems

Never Before Have So Many Advantages Been Combined In A Single Computer Installation

- New high reliability and easy maintenance.
- 2,048 word memory with compressed coding.
- New low price with 1 year warranty and maintenance service provided.
- Alphabetical and numerical information handled.
- Self-checking features to detect errors.
- Rapid Input-Output on electric typewriter or punched tape.

Write for Complete Technical Information and Specifications

LOGISTICS RESEARCH, INC.
141 So. Pacific Ave. • Redondo Beach, Calif. • Oregon 8-7108

ADVERTISING INDEX -- JANUARY, 1953

The purpose of COMPUTERS AND AUTOMATION is to be factual, useful, and understandable. For this purpose, the kind of advertising we desire to publish is the kind that answers questions, such as, What are your products? What are your services? And for each product, What is it called? What does it do? How well does it work? What are its main specifications? Adjectives that express opinion are not desired. We reserve the right not to accept advertising that does not meet our standards.

Every advertisement in this issue, we believe, is factual and objective. For these reasons, we think that the advertising is likely to be worth reading. So far as we can tell, the statements made are reasonable, informative and worth considering.

Following is the index to advertisements:

Advertiser	CA No.	Subject	Page
Alden Products Co.	127	Computer Components	21
Computers and Automation	128	Advertising; Back Copies; Reply Form	30, 19, 23
Ferroxcube Corp. of America	129	Magnetic Core Materials -- Ferrites	23
Intelligent Machines Research Corp.	131	Electronic Reading of Printed Characters, etc.	25
Laboratory for Electronics	132	Solid Delay Line	21
Logistics Research, Inc.	133	Electronic Digital Computer: ALWAC	29
The Macmillan Company	134	"Design for Decision" and Two More Books	25
Monrobot Corp.	135	Monrobot Computer	2
Nuclear Development Associates	136	Circle Computer	31
Raytheon Manufacturing Co.	137	Tape Handling Mechanisms	27
Sprague Electric Co.	139	High Stability Capacitors for Critical Circuits	32
Sylvania Electric Products, Inc.	140	Computer Crystals and Transistors	5

If you wish more information about any of the products or services mentioned in one or more of these advertisements, you may circle the appropriate CA No.'s on the Reader's Inquiry Form (see page 23), and send that form to us -- we pay postage (see the instructions). We shall then forward your inquiries, and you will hear from the advertisers direct.